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ABSTRACT

The Timmons Savings Plan, which encourages families to save toward college costs, is analyzed. This plan allows for periodic (non-tax deductible) contributions to an account administered by the U.S. Department of the Treasury. The amount deposited would be matched by the federal government in exchange for the government's earning the interest on the deposits. Federal matching rates would be inversely related to family income level. The following issues are addressed: the estimated amount that would be saved by families in a given year; the estimated amount that would be saved by families for a college education, the estimated cost of the plan to the federal government based on several options, a comparison of the plan to an Educational Savings Account option, and the extent to which the cost of an undergraduate education could be financed by the plan. Using 1980 dollars, costs are estimated for attending four types of colleges and universities: public four-year, public two-year, private four-year, and private two-year. The plan is based on the assumption that the consumers do not change their allocation between consumption and savings despite changes in the general price level. Policy issues surrounding implementation of the plan are also briefly considered. (SW)

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THE TIMMONS SAVINGS PLAN: A WORKING DOCUMENT ON A PLAN TO ENCOURAGE FAMILIES TO SAVE FOR COLLEGE

Michael L. Tierney
Higher Education Finance Research Institute
University of Pennsylvania

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The Timmons Savings Plan:

A Working Document on a Plan to Encourage Families

to Save for College

Michael L. Tierney
Higher Education Finance Research Institute
University of Pennsylvnia

March 1986

Funding for this report provided by The Exxon Education Foundation

FOREWORD

As college costs continue to rise and federal resources contract, there is a great deal of concern about the ability of families to meet the increasing costs of sending their children to college. One way to address this concern is to devise ways to assist families in meeting college bills without relying on the traditional federal grant, loan, and work programs. By encouraging families to save for their children's future college education, the burden of ensuring access to postsecondary education, as well as choice among postsecondary institutions, will be more closely tied to the commitment of the family than to the constantly shifting winds of the federal legislative process.

A recent national survey sponsored by the National Institute of Independent Colleges and Universities indicated that most parents do not currently save for their children's future college education and that those who do save are not saving enough to be able to meet the spiraling costs of college. This paper presents a new idea for encouraging parents and students to plan and save in advance of college enrollment.

The Timmons Savings Plan (named for Becky Timmons, a member of ACE's Division of Governmental Relations and the developer of the basic framework of this concept) is designed to encourage low-, middle-, and upper-income families to save towards college costs. The plan has several features that make it markedly different from other savings plans that have been discussed in recent years (e.g., education "IRA's"):

1) The Plan is based on the federal government matching the dollars that families save.

2) Under some of the options discussed in this report the federal matching requirement would vary by income; families whose annual incomes were below $15,000 would have their contributions matched at a $2:$1 rate, those with incomes between $15,000 and $50,000 would receive a $1:$1 match, while those above $50,000 would receive only a $1:$2 match.

3) There could be a cap placed on the total federal matching for an individual student (possibly $10,000 or one-half the cost of education).

As you will see, the report presents several options for the final shape of the plan; cost estimates and savings estimates are derived for various combinations of these options.

While this concept needs more refinement, it is important to put the Timmons Plan on the table where it can be viewed in comparison to other ideas for encouraging families to save for college.

This report is a follow-up to a paper issued in the Fall of 1984 entitled "Incentives for Tuition Savings," which is available on request from ACE's Division of Policy Analysis and Research.

A grant from the Exxon Education Foundation funded both of these reports. ACE is grateful to Exxon for its support of this project. We would also like to thank Dr. Michael Tierney, Associate Director of the University of Pennsylvania's Higher Education Finance Research Institute for taking an undefined concept and turning it into a realistic proposal for assisting American families.

Scott E. Miller
Senior Research Associate

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Timmons Savings Plan:
A Working Document on a Plan to Encourage Families to Save for College

Introduction

Prior to the passage of the Education Amendments of 1972, there was widespread discussion of the financing of postsecondary education (Bowen and Servelle, 1966; Orwig, 1971; Carnegie Commission, 1972). As in all such discussions of postsecondary education finance, the fundamental issue being addressed concerned how the burden of the full costs of a college education should be distributed among various parties. Of particular concern in these pre-1972 discussions was the attention given to the substantial burden of the income forgone by students and their families when enrolled. Partly in recognition of this burden, the Education Amendments of 1972 marked a shift in federal policy in which financial assistance would be provided directly to students. By 1981-82, the Pell grant program (formerly known as Basic Education Opportunity Grants, or BEOGs) was estimated to be providing approximately 2,606,000 college students with $2,419,000,000 in assistance (Office of Student Financial Assistance, 1982).

Subsequent to the Education Amendments of 1972, a series of modifications have led to a significant redistribution in the burden of financing a college education away from parents and toward the taxpayers and the future earnings of increasing numbers of students. The amount parents are expected to contribute to their son's or daughter's college education declined in real terms, the level of student indebtedness increased, and federal and state programs ballooned. Such trends are not likely to continue into the next century for several reasons. First, the federal government shows little inclination to increase either appropriations for Pell awards, or the ceiling on borrowing under the Guaranteed Student Loan program. Second, student resistance to increasing levels of indebtedness also appears to be on the rise. When this indebtedness is coupled with new financing instruments (e.g., adjustable rate mortgages) for young families, the spector of perpetually indebted cohorts is raised. Third, there is a growing concern over the erosion in the historical pattern of intergenerational financing of a college education. Such erosion is not surprising given that parents continue to have little, if any, incentive to save for their children's education.

The purpose of this paper is to explore the implications of providing parents with such incentives. In particular, this paper analyzes the potential impact of the Timmons Savings Plan (hereafter to be referred to as the Plan) on family savings for a college education. This Plan seeks to encourage periodic (non-tax deductible) contributions to an account administered by the U.S. Department of the Treasury. The amount deposited would be matched by the federal government in exchange for the government's earning the interest on the deposits. In order to assess the potential impact of such a Plan, answers will be provided to the following questions:

- How much will be saved by families in a given year?
- How much will be saved by families for a college education?
- How much would the Plan cost the federal government?
- How does the Plan compare with an Educational Savings Account option?
- To what extent could the cost of an undergraduate education be financed by this Plan?

Before turning to each of these questions, a brief conceptual framework will be sketched and the basic assumptions underlying this paper will be stated.

Conceptual Framework

In the traditional view of consumer behavior, the consumer decides to allocate his/her income among various activities. If these activities are dichotomized between consumption and savings, then two basic functions may be determined; the consumption function and the savings function. Clearly, one is the complement of the other.

The primary determinant of consumer savings behavior is the level of consumer income. In estimating savings function, it is critical that the income variable reflect the income that the consumer is free to allocate between consumption and savings. Thus, it should represent disposable (i.e., after tax) income. Also, the income variable should not confound nominal and real income variations. This second stipulation, which is of particular importance in this paper, assumes that the consumer does not change his/her allocation between consumption and savings despite changes in the general price level. Throughout this paper, this latter assumption is made.

The analysis of consumer savings behavior is complicated by several factors in addition to income level. Solmon (1975) found that individuals with more education are more likely to save than less educated individuals with comparable incomes. In fact, Solmon (1975) found evidence to indicate that more

educated individuals are more sophisticated at managing their investments than less educated individuals who are otherwise comparable. Consequently, failure to control for such factors as level of education, occupational status, etc. will lead to substantial amounts of unexplained variation in savings functions.

There are a variety of specific hypotheses concerning savings functions. In Keynes' view, current savings is a function of current income in which the marginal propensity to save is positive but less than one. Friedman's permanent income hypothesis is based on the idea that both income and savings can be divided between permanent and transitory components, with permanent savings being a function of permanent income. With this division, the permanent income hypothesis means that an increase in permanent income will result in a proportional increase in permanent savings.

These various hypotheses raise empirical questions that are beyond the scope of this paper. It should be clear from this brief sketch that the development of incentive structures to induce family savings for a college education (or any other purpose) rests upon theoretical propositions that have not been subjected to extensive empirical analyses.

Basic Assumptions

For the purposes of this paper, it is assumed that the Plan was implemented in 1980. This assumption means that families could begin by making contributions in 1980 and each year thereafter. The rationale underlying this assumption is a pragmatic one; the most recent data for estimating Plan participants and savings was for 1980.

The second fundamental assumption is that all dollar estimates are provided in 1980 dollars. This assumption has numerous implications throughout this paper. When applied to family savings estimates, it means that there are no real increases (or decreases) in the amount a family saves over time. Stated alternatively, a family saves more money (in current dollars) each year, but just enough to offset increases in the cost of living. As was suggested in the proceeding section, the measurement of family income levels in real (1980) dollars automatically carries with it this behavioral hypothesis.

A corollary to this assumption is the assumption that there is no change in the distribution of families by income levels over time. Again, while families will experience increases in total family incomes, these increases are roughly the same for all income levels. If anything, wage increases for families with more highly educated household heads are likely to increase faster than household heads with less education. Thus, a 12-year

old child in a family whose 1980 total income was $15,000 could expect approximately the same real income (whatever the nominal value of that income) in the next six or seven years. Note that the assumption of no change in the family income distribution applies to a single generation only; it is quite likely that some intergenerational mobility occurs, particularly among those secondary seniors that go on to college.

When the assumption of measuring all dollars in real (1980) dollars is applied to estimating educational costs, a different problem is encountered. Throughout this paper tuition and fee charges are increased at a rate of 2.5 percent per year to reflect real increases in the cost of attending various colleges or universities. The rationale for these real increases in the cost of instructional programs is embedded in the economics of colleges and universities. First, colleges and universities have long been recognized as labor-intensive industries with little or no increases in productivity. Consequently, colleges must pass on to their clients (either students and their families or the taxpayer) any increases in their costs. O'Neil (1971) estimated that educational and general expenditures per student increased at a real rate of 2.5 percent per year in the first half of this century. Second, colleges and universities have as one of their major activities the augmentation of student productivity. As a result of attending a college or university, students can expect starting incomes that are not only higher than would have been the case if they entered the labor force right after high school, but incomes that increase at a faster rate than high school graduates. Becker (1975) estimates this real rate of increase to be 2.5 percent per year for college-educated workers.

This similarity between O'Neil's and Becker's studies is not coincidental. Because most college employees are college educated, the rate of growth in their salaries must reflect the rate of college-educated workers generally. Otherwise, the ability of colleges and universities to attract and retain faculty and support staff of the highest caliber will be seriously eroded. Hence, it is reasonable to assume that costs directly related to a college's instructional activities will increase at a rate roughly equal to inflation plus 2.5 percentage points throughout the remainder of this century. Room and board and other costs of attending college on the other hand are assumed to reflect only inflationary increases.

Finally, when the assumption of measuring all dollars in real (1980) dollars is applied to estimating interest earned on Plan deposits, yet another problem is encountered. For the purposes of this paper, a 5 percent real interest rate is employed. Thus, if the rate of inflation is 4 percent, either the government or students and their families are assumed to be able to earn at least 9 percent on their accounts. As long as

the spread between the interest rate that can be earned and the rate of inflation remains at 5 percent, then estimates in this particular analysis will be accurate. Obviously, the impact of other real interest rates could be assessed.

How Much Will Be Saved in a Given Year?

Family savings for a college education derive from two sources; parental savings for the education of each of their children and the earnings of those children from part-time and summer jobs. Estimates of savings from each of these sources are provided below.

In 1980, there were 32,770,000 families in the United States with children under 18 years of age (Bureau of Census, 1981). These families and the average number of such children are distributed by income level as shown in Table 1. For instance, there were 4,634,000 families with total family income between $15,000 and $20,000. On the average, these 4,634,000 families had 1.8 children under the age of 18.

By far the most important estimate in Table 1 is the annual Plan savings for families by income level. These estimates are derived from the Internal Revenue Service and are based upon contributions to individual retirement arrangements by income level (Internal Revenue Service, 1981). On average, all families with children under 18 years of age contributed $1194 to such arrangements during 1980. As would be expected, contributions increase with family income level. Although discussed in greater detail below, the proportion of families contributing to such arrangements also increases with family income level (see Table 3), again as one would expect. When divided by the average number of children for that income level, the average contribution per child is obtained.

The use of Internal Revenue Service data is particularly appropriate to estimate annual Plan savings. It accomplishes in one step what would require two steps if information were available on total family savings only, i.e., the necessity to estimate both total family savings and the proportion applied to the Plan. These data are current rather than requiring cost of living adjustments derived from an earlier survey. Most important, the Internal Revenue Service data are based upon a set of savings incentives that closely approximates the savings behavior the Plan seeks to encourage. Not the least of these incentives is the ceiling on family contributions of $4,000 for working couples. This ceiling constitutes one important (although implicit in this paper) policy parameter for the federal government.

TABLE 1

ESTIMATED ANNUAL PARENTAL SAVINGS
(1980)

FAMILY INCOME LEVEL	Number of Families with children under 18 (in thousands)[1]	Average Number of Children under 18[1]	Annual Plan Savings[2]	Annual Plan Savings Per Child
under $5000	2498	1.9	$ 782	$412
5 - 10,000	3760	2.0	804	402
10 - 15,000	4306	1.9	987	519
15 - 20,000	4634	1.8	1185	658
20 - 25,000	4710	1.9	1265	666
25 - 50,000	10856	1.9	1388	731
over $50,000	2006	1.8	1692	940
TOTAL	32770	1.9	$1194	$629

1. Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, March 1981.

2. Source: U.S. Internal Revenue Service, Statistics on Income: Individual Income Tax Returns.

The second source of family savings is the savings derived from the earnings of each child. While some children may develop some savings in pre-adolescence (from paper routes, baby-sitting, gifts, etc.), most earnings will be generated after the child's sixteenth birthday. For the purposes of this analysis, estimates of the earnings of 16 and 17 year-olds were derived from the Bureau of Labor Statistics. These estimates are presented in Table 2a.

Table 2a

Estimated Annual
Child Savings

	Academic Year	Summer
Average Weeks Worked	13.6	10
Average Hours Per Week	18.7	26.7
Average Earnings Per Hour	$ 6.57	$ 6.57
Total Earnings	$1671.00	$1754.00
Savings Contribution Rate	.35	.35
Total Savings	$ 585.00	$ 614.00

SOURCE: U.S. Department of Labor, Employment and Earnings, 1981.

Several aspects of this table should be noted. First, Bureau of Labor Statistics provide the total number of weeks worked in a year only. Consequently, this aggregate weeks worked figure must be decomposed into academic year and summer employment. In the analysis presented in this paper, 16 and 17 year-olds were assumed to work 10 weeks in the summer and the remaining weeks during the academic year. Because the average number of hours worked per week is greater in the summer, this division tends to bias upwards the estimated student earnings. Second, young adults are assumed to save 35 percent of these earnings, a percentage that equals the student asset tax rate employed by the various student financial aid services in 1979-80. Thus, each child employed in the labor force would contribute $1,199 to his/her college education savings account.

This last qualification is critical, however. Using the same Bureau of Labor Statistics reports, it is possible to estimate both the number of 16 and 17 year-olds who are in the labor force and who have jobs (Table 2b). It is clear that fewer than half of these young adults have jobs while in school and only about 55 percent have jobs during the summer. Subsequent estimates of child savings applied to the Plan (Table 5) adjust for these labor force and employment estimates.

Table 2b

Estimated Labor Force
and Employment Rates

	Academic Year	Summer
In Labor Force	.565	.635
Employed	.809	.897

SOURCE: U. S. Department of Labor, Employment and Earnings, 1981.

It should be noted that the savings estimated for each child ends in June of the high school senior year. This month marks the point separating saving for a college education and the application of student self-help expectations for financial aid purposes. Thus, each child could earn money for a college education savings account for a maximum of 30 months. In the case of those young adults who were 17 years old in 1980, the maximum number of months they could contribute to a college savings plans was 18 months.

It is now possible to estimate the annual contributions to the Plan. For a child under 16 years of age, parents in the $15-20,000 income category are estimated to contribute $658 per child per year. Once the child has reached his/her sixteenth birthday, it is necessary to determine whether the child is employed. If employed, the total family contribution increases to $1,857. If not employed, the estimated family contribution remains at $658. The total Plan savings that may be accumulated is simply the sum of these annual contributions.

How Much Will be Saved Over A Given Period of Time?

The primary problem in estimating these cumulative savings is to project the number of students enrolled in some form of postsecondary education who participated in the Plan. The basis

for this projection is an analysis of the U.S. Census Bureau's Current Population Survey for May 1981. Projected enrollments are based on the number of children under the age of 18 by age and family income level. For instance, the total number of 9 to 12 year-olds in the $15,000-$20,000 income bracket was estimated to be 1,939,000 in 1980 (Table 3). Some subset of these 9-12 year-olds will form the foundation for students enrolled in college in 1990. Thus, projected enrollments are based upon Bureau of the Census estimates of the number of children by one-year age intervals.

Two aspects of this projection should be noted. First, no attempt was made to adjust Bureau of the Census estimates for mortality rates among young people. Because these mortality rates tend to be very small, such an adjustment would not make a major impact on estimated student enrollments. Second, the broad $20,000-$50,000 income bracket is required due to the manner in which total family income is coded on the May Current Population Survey. All other income brackets are coordinated with the income brackets available from this data source.

While the total pool of 19-22 year-olds can be estimated from the May Current Population Survey, it is necessary to estimate high school graduation rates and college participation rates by family income level in order to estimate the number of 19-22 year-olds enrolled in college. These estimates also are derived from the Current Population Survey for May 1981. Continuing with the $15,000-$20,000 income example, 72 percent of the 18 to 22 year-olds had graduated from high school in 1980, and 28 percent of these high school graduates were enrolled in college. Note that the estimated college participation rate includes both full-time and part-time enrollments which are aggregated in this report. These two rates -- of high school graduation and college participation -- constitute primary planning variables which may be manipulated in subsequent analyses.

By far the most important planning variable is the proportion of students involved in the savings Plan. For the reasons cited earlier, this proportion is based upon Internal Revenue Service descriptive statistics regarding the percentage of the total number of individual income tax returns which involved contributions to individual retirement arrangements in 1980. As is clear from Table 3, this proportion is directly related to a family's income level with the poorest families in the country (i.e. those with adjusted gross incomes under $5,000) contributing to such arrangements at a rate of less than 1 in a 1,000 while almost 14 in 100 families with incomes over $50,000 made such contributions. It is likely that these rates of Plan participation will change (i.e. increase) over time, increases which could be analyzed in subsequent analyses. In fact, preliminary investigation of the rates of change in contributions

TABLE 3

ESTIMATED PLAN PARTICIPANTS

TOTAL FAMILY INCOME	Number of 19-22 Year-Olds (in thousands)			Proportion in Plan	H.S. Grad. Date	Proportion Enrolled in College	Number of Plan Participants in College		
	1985	1990	1995				1985	1990	1995
under $5000	1003	1188	1258	.0009	.58	.34	200	237	251
5 - 10,000	1897	1783	1716	.006	.63	.25	171	160	154
10 - 15,000	2091	2084	1974	.015	.70	.22	4183	4168	3949
15 - 20,000	1809	1939	1819	.025	.72	.28	9046	9693	9096
20 - 25,000	2191	2088	1905	.039	.74	.34	21910	20883	19050
25 - 50,000	4337	3691	2869	.078	.80	.44	130109	110708	86084
over $50,000	993	646	367	.139	.85	.59	69514	45255	25671
TOTAL	14321	13419	11908				235133	191104	144255

to individual retirement accounts between 1980 and 1981 indicate that such increases have occurred with the increases inversely related to family income level.

If the 1980 estimates of these three planning variables -- high school graduation rates, college enrollment rates, and Plan participation rates -- are multiplied by the projected number of young adults, the number of Plan participants are estimated to decline from 235,000 in 1985 to 144,000 in 1995 (Table 3). Because multiplication by a constant is involved, the reason for this decline is the dismal demographics so long prophesized. Further, the values assumed for these planning variables highlight the obvious; by far the greatest beneficiaries of any type of college savings plan will be students from more affluent families. This conclusion is true not only because of the greater rate at which they will save for a college education, but also because of the higher rates of high school completion and college participation. Such a conclusion will be particularly important as various options for federal matching policies are analyzed later in this report.

Finally, Table 4 summarizes the cumulative savings for students participating in the Plan who enroll in 1985, 1990, and 1995. These estimates of cumulative savings are determined by multiplying the number of plan participants by one-year age intervals (i.e. the data underlying Table 3) and the amount of money that could be saved between 1980 and the year of college entry for each income level (i.e. Table 2). For instance, 2,306 14 year-olds (in 1980) in the $15,000-$20,000 income bracket were estimated to be enrolled in the Plan. If parents contributed $658 each year to a college education savings account, a total of $7,568,740 could be accumulated by the time these young adults entered college in Fall 1984. To these savings must be added the amount of savings generated by the earnings of those young adults who were employed in the 2.5 years that they could work, or an additional $3,556,930. If the accumulated savings of all (not just freshmen) adults in this income bracket enrolled in college in 1985 were aggregated, the total savings of $28,011,000 (Table 4) is estimated.

Note the patterns revealed in Table 4.

First, cumulative savings increase from $782,809,000 in 1985 to $1,693,567,000 in 1995. This 116 percent increase occurs despite the absolute decline of 90,000 participants during the same period (Table 3). Such a result occurs due to the longer period of time families have to save for a college education, and suggests that the costs (to the federal government) of this Plan could escalate very quickly as college enrollments turn around toward the end of this century.

TABLE 4

CUMULATIVE SAVINGS

TOTAL FAMILY INCOME	From Family's Savings (in thousands)			From Child's Savings (in thousands)			Total Savings (in thousands)		
	1985	1990	1995	1985	1990	1995	1985	1990	1995
under $5000	$ 288	$ 835	$ 1398	$ 125	$ 523	$ 556	$ 413	$ 1358	$ 1954
5 - 10,000	237	548	839	108	247	237	345	795	1076
10 - 15,000	7471	18444	27633	2683	6430	6092	10154	24874	33725
15 - 20,000	20923	54615	81255	7088	14955	14034	28011	69570	95289
20 - 25,000	51041	118314	171243	17376	32219	17930	68417	150533	189173
25 - 50,000	324127	682476	847892	85479	170803	132812	409606	853279	980704
over $ 50,000	220806	347361	352040	45057	69820	39606	265863	417181	391646
TOTAL	$624893	$1222593	$1482300	$157916	$294997	$211267	$782809	$1517590	$1693567

Second, the source of the cumulative savings shift over this ten year period from 20 percent being provided from a young adult's earnings to only 12 percent by 1995. Again this pattern is due to the length of time available to families to accumulate savings for their children. The younger the children in 1980, the longer families have to contribute to a college education savings program.

How Much Will the Plan Cost?

The starting point for determining the cost to the federal government of the Timmons Savings Plan is the average family savings under the Plan (Table 5). These averages are derived by dividing the total savings (Table 4) by the number of Plan participants (Table 3). It is clear that the savings of students and their families under the Plan increase with family income level, from a low of $2,018 to a high of $3,825 in 1985. By 1995, these averages would increase to $6,987 and $15,256, respectively. This growth is entirely due to the longer period of time over which families could contribute to such a savings plan. Because families will have had up to 15 years to contribute to a Timmons Savings account by 1995, this year provides a close approximation to the maximum savings that a family could accumulate under this Plan.

TABLE 5

Average Family Savings

Total Family Income	Average Savings 1985	1990	1995
Under $5000	$ 2065	$5730	$7785
5-10,000	2018	4969	6987
10-15,000	2427	5968	8540
15-20,000	3097	7177	10476
20-25,000	3123	7208	9930
25-50,000	3148	7707	11392
over$50,000	3825	9218	15256
Total	$3329	$7941	$11740

Based upon the average, accumulated savings, it is possible to estimate the cost to the federal government of matching these savings. In devising these estimates, two variables are critical: the rate at which the federal government matches the savings that participants have accumulated, and the ceiling that the government imposes on its contribution. In this paper, four options were generated using two values for each of these variables.

For the matching rate variable, one alternative is for the federal government to match, dollar for dollar, the contributions made by students and their families. For instance, if a student and his/her family had saved a total of $3,329 by 1985, the federal government would match this amount, thus providing the student with $6,656 toward some form of postsecondary education or training. This dollar-for-dollar matching was employed in Options A and C in Table 6. Providing federal funds on a dollar for dollar basis might be considered regressive by many policy analysts because it would tend to reward those who had the greatest ability to save -- those with the greatest means. As a result, a varying matching rate policy was adopted for Options B and D in Table 6. Specifically, the federal government would provide two dollars for every dollar contributed if the student was from a family with less than $15,000 in income, dollar for dollar for those with incomes between $15,000 and $50,000, and one federal dollar for every two student/family dollars if total family income exceeds $50,000. Despite this variation in federal matching rates, it is critical to remember that by far the greatest beneficiaries of any type of college savings plan will be students from more affluent families. Even though it is possible to equalize the resources available for a college education across income levels by varying the federal matching rate, substantially fewer students from lower income families would be participating in the Plan under any circumstances.

Of course, other values could be substituted for those included in this paper; these have been chosen as representative of the types of approaches that could be taken. The income ranges, for example, could be indexed or changed in order to encourage more low-income families or limit the benefits to upper income households.

For the federal contribution ceiling variable, two alternatives are presented. Options A and B establish federal contribution ceilings which increase from $5,000 in 1985 to $10,000 in 1990, and to $15,000 in 1995. The second alternative is to hold this contribution ceiling constant over the projected period. Options C and D limit federal contributions to $10,000 between 1980 and 1995.

The impact of these various combinations of federal contribution rates and ceilings on the average funds available for a college education may be illustrated again by a student from a family with an income between $15,000 and $20,000 in 1980 dollars. By 1995, such a student would have accumulated $10,476 in family savings for some form of postsecondary education or training (Table 5). Under Options A and B, these family savings would be matched, dollar for dollar, by the federal government to yield a total of $20,952 for a college education (Table 6). Under Options C and D, the federal contribution ceiling of $10,000 would be imposed, thereby reducing the total funds available by $476 to $20,476 (Table 6).

Table 7 displays the net cost to the federal government of these various programs. These cost estimates are net of the estimated interest that would be earned by the Treasury Department as is stipulated under the Plan. In 1985, Options A and C are the least costly to the federal government. By 1995, Option D is the least costly given the imposition of the $10,000 federal contribution ceiling. Such an option, however, seriously penalizes those students from families with less than $15,000 in income. Option B, which does not fix the federal contribution ceiling at $10,000, results in approximately the same level of funds available for a college education across all income levels.

How Does the Plan Compare With Other Savings Plans?

An important consideration in developing the Timmons Savings Plan is its attractiveness relative to other savings plan options. For purposes of this report, the alternative savings plan presented is an Educational Savings Account similar to Individual Retirement Accounts in which contributions to such an account are tax deductible. Given that contributions to IRAs constitute the basis upon which family contributions to the Timmons Savings Plan are estimated, such an alternative would seem reasonable. Further, the federal government has only one way other than direct expenditures to encourage families to save for their children's education, and that is some form of tax incentive.

Table 8 provides an estimate of the total amounts that could be accumulated under an Educational Savings Account. In the ESA, families are assumed to make contributions to their educational account just as in the case of the Timmons Savings Plan. Unlike the Timmons Plan, families earn interest on their investments. Thus, the total accumulated by families at various income levels constitutes a simple ordinary annuity. For instance, the student from a family with income of less than $5,000 (in 1980) would have accumulated a total of $3,135 by 1985 and $9,777 by 1995. In every case where the values in Table 8

TABLE 6

Average Funds Available for College

Under the Timmons Savings Plan

Total Family	Option A			Option B			Option C			Option D		
Income	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995
under $5000	$4130	$11460	$15570	$6195	$15730	$22785	$4130	$11460	$15570	$6195	$15730	$17785
5 - 10,000	4036	9938	13974	6054	14907	20961	4036	9938	13974	6054	14907	16987
10 - 15,000	4854	11936	17080	7281	15968	23540	4854	11936	8540	7281	15968	18540
15 - 20,000	6194	14354	20952	6194	14354	20952	6194	14354	20476	6194	14354	20476
20 - 25,000	6246	14416	19860	6246	14416	19860	6246	14416	19860	6246	14416	19860
25 - 50,000	6296	15414	22784	6296	15414	22784	6296	15414	21392	6296	15414	21392
over 50,000	7650	18436	30256	5737	13827	22884	7650	18436	25256	5737	13827	22884
Total	$6658	$15882	$24536	$6139	$14887	$22319	$6658	$15882	$22288	$6139	$14887	$21308

are compared with the values for a particular option in Table 6, the Table 8 values are smaller. Clearly, the federal matching contribution makes the Timmons Savings Plan the more attractive option to students and their families.

The values in Table 8 also can be compared to the average values in Table 5 where the average savings accumulated by students and their families for the Timmons Savings Plan are presented. The difference between these two tables is the interest earned by these annuities over the period the student and his/her family contributes to them. In the Timmons Savings Plan, the interest earned is deducted from the total cost of the federal matching contributions (Table 7). In the Educational Savings Account, this interest is credited to student accounts.

Finally, Table 8 also presents the estimated cost to the federal treasury of the tax deductions taken by parents participating in an Educational Savings Account. These estimates were derived by multiplying the total contributions made to Educational Savings Accounts by the marginal tax rate for each income level. When these foregone tax revenues are compared to the cost of operating the Timmons Savings Plan, the foregone tax revenues are smaller than the net cost values for all options in Table 7. The Timmons Savings Plan is the more expensive of the two approaches to increasing parental savings for a college education.

Educational Costs Financed by the Plan

Table 9 displays the estimated costs associated with attending any one of four types of colleges and universities; public four-year, public two-year, private four-year, and private two-year. These estimates are based upon the following methodology:

Average tuition and fee and total student expense budgets were derived from the College Board for 1980. The tuition and fee charges are then increased at a rate of 2.5 percent per year to reflect real increases in the cost of attending these institutions. Non-tuition charges were increased at the rate of inflation which, because these estimates are presented in 1980 dollars, show no change across the fifteen years covered in this projection. When tuition, fee and other charges are summed, the total cost of attending each of the four types of colleges for one year is obtained. Thus, the total cost of attending a public, four-year institution increases from $3,347 (1980 dollars) in 1985 to $3,563 (1980 dollars) in 1995.

In order to obtain the total cost of a college education, these one-year costs are multiplied by the number of years required to complete a course of study at that institutional type. For instance, a student attending a public, four-year

TABLE 7

Federal Expenditures for the Timmons Savings Plan:

A Summary of Various Options
(in thousands)

Option	Total Federal Outlay			Interest Earned			Net Cost to Federal Government		
	1985	1990	1995	1985	1990	1995	1985	1990	1995
Option A:									
1) Constant matching rate 2) Increasing ceiling	782824	1517508	1686944	105676	362393	680511	677148	1155115	1006433
Option B:									
1) Varying matching rate 2) Increasing ceiling	797734	1327539	1526095	105676	362393	680511	692058	965145	845584
Option C:									
1) Constant matching rate 2) Fixed ceiling	782824	1517508	1434430	105676	362393	680511	677148	1155115	753919
Option D:									
1) Varying matching rate 2) Fixed ceiling	797734	1327538	1380324	105676	362393	680511	692058	965145	699813

TABLE 8

Average Funds Available for College
Under an Educational Savings Account

Total Family Income	Educational Savings Account			Cost to Federal Govt. (in thousands)		
	1985	1990	1995	1985	1990	1995
under $5000	$3135	$6177	$9777	$ 0	$ 0	$ 0
5 - 10,000	3058	6062	9636	38	88	134
10 - 15,000	3503	7328	11854	1494	3689	5527
15 - 20,000	4121	8857	14695	5022	13108	19494
20 - 25,000	4138	8907	14757	14291	33128	47948
25 - 50,000	4293	9528	15998	119927	252516	313720
over 50,000	5048	11689	20085	119235	187575	175522
Total	$4479	$9883	$16348	$260007	$490104	$562345

institution in 1985 would anticipate a total cost for his/her education of approximately four times the annual cost of $3,347, or $13,388. It is these total educational costs over the two or four-year period of one's educational program that the Timmons Savings Plan is intended to finance.

Using the estimates in Table 9, it is now possible to determine the proportion of educational costs that would be financed by the Timmons Savings Plan. As indicated earlier, the appropriate costs involve those associated with completing an educational program of two or four years in duration. For purposes of illustration, only Options B and D (Table 6) will be employed.

Table 10 presents the proportion of educational costs financed by the Plan. To interpret these proportions, consider the case of a low income student (i.e. family income of less than $5,000 in 1980) attending a public, four-year college in 1985. If this student and his/her family had participated in the Plan since 1980, their savings plus the federal contribution would pay for 46 percent of four years at this institution under Options B and D. By 1995, a student from a similar family background would receive 160 percent of the total cost of attending a public four-year institution. It is unlikely that the federal government would make contributions to provide this level of support to a student attending any college or university. Such examples, and there are many in Table 10, would suggest that there should be yet a third constraint on federal contributions to the Timmons Savings Plan; the federal contribution would be the lesser of the imposed ceiling ($5,000, $10,000 and $15,000 for 1985, 1990, and 1995 under Plan B, or $10,000 under Plan D) or one-half the cost of attending a particular educational program. Such a constraint would also solve the problem of the level of federal contribution for those students who attend college part-time.

Conclusions and Implications

From the preceding analyses, it is clear that the Timmons Savings Plan provides a potentially important incentive for families to save for their children's college education. Under this Plan, families could conceivably accumulate funds sufficient to pay for almost all of a four-year education at a private college or university. In the long run, the burden of financing a college education could be returned to the family, thus restoring the historical pattern of intergenerational transfers of wealth.

In order to implement such a Plan, several major decisions must be addressed. Specifically, what criteria should be employed in deciding among the primary policy parameters governing this Plan; i.e. the federal matching rate and

TABLE 9

Estimated Educational Costs
(1980 Dollars)

Institutional Type	1985		1990		1995	
	Tuition	Total Cost	Tuition	Total Cost	Tuition	Total Cost
Public						
Four-Year						
One year	$ 769	$ 3347	$ 870	$ 3448	$ 985	$ 3563
Four years	3076	13388	3480	13792	3940	14252
Two -Year						
One year	440	2557	498	2615	563	2680
Two years	880	5114	996	5230	1126	5360
Private						
Four-Year						
One year	3307	5910	3742	6345	4233	6836
Four years	13228	23640	14968	25380	16932	27344
Two-Year						
One year	2311	4462	2615	4766	2959	5110
Two years	4622	8924	5230	9532	5918	10220

Source: College Entrance Examination Board, College Costs, 1981.

contribution ceiling? One criterion concerns an issue of equity. The objective of this Plan might be to provide all participants with at least comparable levels of resources with which to attend college. With this objective, federal matching rates would have to be inversely related to family income level as in Options B and D (Table 6). But as is apparent in Option D, it is quite easy to frustrate this objective by imposing a contribution ceiling which, while intended to limit federal expenditures, ultimately penalizes students from lower income families.

The concern over the level of federal appropriation to such a Plan constitutes a second potential criterion. It is clear from Table 7 that at least $700 million would be required to operate this Plan, with the potential for dramatic increases in the 21st century as the number of young adults entering college increases. When the Timmons Savings Plan is compared to an Educational Savings Account plan (Table 8), it is clear that the Plan — at least as developed under Option B — is substantially more expensive.

It is recognized that the imposition of a third constraint, that the federal contribution not exceed one-half of the cost of the educational program, would reduce the difference in federal outlays while not reducing the interest earned, thus narrowing this difference.

Thus, the federal government faces a trade-off. To the extent that the government wants to increase family savings for a college education, then the Timmons Savings Plan is the more attractive alternative. This incentive structure would be more attractive to families by providing more funds for a college education, and could be structured to equalize the funds available to participating families across income levels. On the other hand, the Timmons Savings Plan is more expensive in terms of the required federal outlays, even net of the interest earned on these accounts.

A series of subsidiary issues surround the implementation of any Timmons Savings Plan. Among these implications are the rules surrounding part-time vs. full-time study, dropping-out of college, and not attending college at all. By far the most important, however, is the relationship between federal contributions to this type of Plan and more traditional forms of student financial assistance. While it is not the purpose of this study to estimate the rate of substitution between these two forms of financial assistance, several issues may be raised.

It must be recognized that any type of savings plan will be a largely middle-class form of financial assistance. By far the greatest amount of savings will accrue to more affluent families. This conclusion does not mean that such families are

TABLE 10

Proportion of Total Educational Costs

Financed by Timmons Savings Plan

1985

Total Family Income	Public 4-Yr		Public 2-Yr		Private 4-Yr		Private 2-Yr	
	Option B	Option D	Option B	Option D	Option B	Option D	Option B	Option D
under $5000	.46	.46	1.21	1.21	.26	.26	.69	.69
5 - 10,000	.45	.45	1.18	1.18	.26	.26	.68	.68
10 - 15,000	.54	.54	1.42	1.42	.31	.31	.82	.82
15 - 20,000	.46	.46	1.21	1.21	.26	.26	.69	.69
20 - 25,000	.47	.47	1.22	1.22	.26	.26	.70	.70
25 - 50,000	.47	.47	1.23	1.23	.27	.27	.70	.70
over 50,000	.43	.43	1.12	1.12	.24	.24	.64	.64

TABLE 10(cont'd)

1990

Total Family Income	Public 4-Yr		Public 2-Yr		Private 4-Yr		Private 2-Yr	
	Option B	Option D	Option B	Option D	Option B	Option D	Option B	Option D
under $5000	1.14	1.14	3.01	3.01	.62	.62	1.65	1.65
5 - 10,000	1.08	1.08	2.85	2.85	.59	.59	1.56	1.56
10 - 15,000	1.16	1.16	3.05	3.05	.63	.63	1.68	1.68
15 - 20,000	1.04	1.04	2.74	2.74	.56	.56	1.51	1.51
20 - 25,000	1.05	1.05	2.76	2.76	.57	.57	1.51	1.51
25 - 50,000	1.12	1.12	2.95	2.95	.61	.61	1.62	1.62
Over 50,000	1.00	1.00	2.64	2.64	.54	.54	1.45	1.45

TABLE 10(cont'd)

1995

Total Family Income	Public 4-Yr		Public 2-Yr		Private 4-Yr		Private 2-Yr	
	Option B	Option D	Option B	Option D	Option B	Option D	Option B	Option D
under $5000	1.60	1.25	4.25	3.32	.83	.65	2.23	1.74
5 - 10,000	1.47	1.19	3.91	3.17	.77	.62	2.05	1.66
10 - 15,000	1.65	1.30	4.39	3.46	.86	.68	2.30	1.81
15 - 20,000	1.47	1.44	3.90	3.82	.77	.75	2.05	2.00
20 - 25,000	1.39	1.39	3.71	3.71	.73	.73	1.94	1.94
25 - 50,000	1.60	1.50	4.25	3.99	.83	.78	2.23	2.09
over 50,000	1.60	1.60	4.27	4.27	.84	.84	2.24	2.24

without need of financial assistance. It does suggest, however, that such assistance may be substituted for other forms of federal aid, particularly Pell awards or subsidized loans.

There are a number of ways that such substitutions may be made. For instance, it could be argued that the eligibility of students from more affluent families for either Pell awards or subsidized loans should be made contingent upon participation in a savings plan. Over time, the minimal levels of savings could be raised in order to strengthen the incentive for family participation in a college savings plan. Or minimal levels of family savings could be assumed as part of the uniform methodology, thus providing a type of required "self-help" for such families. In either case, family dollars become the first dollars into financing a college education, thus substituting family for federal dollars.

It must be emphasized that the preceding discussion applies only to the more affluent families. Without question, students from lower income families will continue to require direct subsidization by the federal and state governments. Given that students from these families are unable to save at anywhere near the rates of more affluent families and that the income forgone while in college is particularly burdensome for these families, continued provision of direct assistance in the form of Pell awards and subsidized loans is essential to the continued provision of access to postsecondary education for students from lower income families.

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